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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,455	06/26/2003	Paula J. Bates	09799910-0034	3317

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EXAMINER	
HUYNH, PHUONG N	

ART UNIT	PAPER NUMBER
1644	

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/607,455	BATES ET AL.	
	Examiner	Art Unit	
	Phuong Huynh	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *Three* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,10-16 and 40-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,10-16 and 40-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-6, 10-16, and 40-50 are pending.

2. In view of the amendment filed 5/15/06, the following rejections remain.

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 6, 12, 47 and 50 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is apparent that the antibody anti-nucleolin antibodies "p7-14A, sc-8031, sc-9893, sc-9892, 4E2 and 3G4B2" and the anti-PARP-1 antibodies "sc-1562, sc-8007, sc-1561, sc1561-Y and sc-7150" are required to practice the claimed invention. As a required element, it must be known and readily available to the public or obtainable by a repeatable method set forth in the specification. If it is not so obtainable or available, the enablement requirements of 35 USC 112, a deposit of the hybridoma, which produce said antibodies, may satisfy first paragraph. See 37 CFR 1.801-1.809.

In addition to the conditions under the Budapest Treaty, applicant is required to satisfy that all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of a patent in U.S. patent applications.

Amendment of the specification to recite the date of deposit and the complete name and address of the depository is required. As an additional means for completing the record, applicant may submit a copy of the contract with the depository for deposit and maintenance of each deposit throughout the life of the patent.

Applicants are reminded that the following and should amend the specification accordingly. The current address of the ATCC is as follows:
American Type Culture Collection, 10801 University Boulevard, Manassas, VA 20110-2209

If the original deposit is made after the effective filing date of an application for patent, the applicant should promptly submit a verified statement from a person in a position to corroborate the fact, and should state, that the biological material which is deposited is a biological material specifically identified in the application as filed, except if the person is an attorney or agent registered to practice before the Office, in which case the statement need not be verified. See MPEP 1.804 (b).

The specification discloses anti-nucleolin antibodies "p7-14A, sc-8031, sc-9893, sc-9892, 4E2 and 3G4B2" and the anti-PARP-1 antibodies "sc-1562, sc-8007, sc-1561, sc1561-Y and sc-7150" for the claimed method are exactly the same antibodies as indicated in the various commercial catalogs from Developmental Studies Hybridoma Bank, MBL International, Upstate, and Santa Cruz Biotech disclosed on page 12-13 of the specification.

However, it is noted that antibodies such as sc-9892 and sc1561-Y are no longer commercially available to the public. For these reasons, it would require undue experimentation of one skilled in the art to practice the claimed invention. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

In re wands, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988), the decision of the court indicates that the more unpredictable the area is, the more specific enablement is necessary. In view of the quantity of experimentation necessary, the limited working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take an undue amount of experimentation for one skilled in the art to practice the claimed invention.

Applicants' arguments filed 5/15/06 have been fully considered but are not found persuasive.

Applicants' position is that these antibodies are available from commercial sources (see, e.g., the specification at pages 12-13, Table 1A and B).

In response, it is noted that antibodies such as sc-9892 and sc1561-Y **are no longer commercially available to the public**. For these reasons, it would require undue experimentation of one skilled in the art to practice the claimed invention.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5, 10-11, 40, 42-43, 45-46, 48 and 49 stand rejected under 35 U.S.C. 102(b) as being anticipated by Martelli et al (J cellular Biochemistry 78: 264-277, 2000; PTO 892).

Martelli et al teach a method of detecting apoptosis comprising preparing a sample without cell from which HL60 cells have been lysis in lysis buffer (see page 266, col. 1, Polyacrylamide Gel Electrophoresis and Immunobloting of Cell Lysates, page 275, Figure 9, in particular), quantifying an antigen in the sample by reacting an antibody such as monoclonal antibody C-2-10 that binds to PARP from Oncogene Research Products to detect apoptosis (see page 265, paragraph bridging col. 1 and col. 2, page 269, col. 2, fourth paragraph, Figure 7, in particular). Martelli et al further teach quantifying an antigen in the sample by reacting an antibody such as monoclonal antibody that binds to an antigen comprising C23/nucleolin in the sample (see page 265, paragraph bridging col. 1 and col. 2, page 269, col. 2, fourth paragraph, Figure 7, in particular). The reference HL60 cells are from tissue culture. The Examiner interprets the term "quantifying" as to mean detecting because quantifying without the levels of nucleolin and full-length PARP-1 that correlated with apoptosis simply means detecting. Further, the reference antibody inherently binds to the "full-length" as well as the cleaved poly(ADP-ribose polymerase (PARP-1). The reference sample inherently comprises apoptotic bodies since the reference method is to detect apoptosis. Thus, the reference teachings anticipate the claimed invention.

Applicants' arguments filed 5/15/06 have been fully considered but are not found persuasive.

Applicants' position is that Martelli et al does not correlate amounts of either nucleolin or full-length PARP-1 to detect apoptosis.

In response, the amended claims do not correlate amounts of either nucleolin or full-length PARP-1 to detect apoptosis. Amended claim 1 recites "A method...wherein quantifying comprises reacting an antibody with the sample". The Examiner interprets the term "quantifying" as to mean detecting because quantifying without the levels, i.e., decrease or increase of nucleolin and full-length PARP-1 that correlated with apoptosis simply means detecting. Further, the reference antibody inherently binds to the "full-length" as well as the cleaved poly(ADP-ribose polymerase (PARP-1).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103(a) that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering Patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-2 and 42-43 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Martelli et al (J cellular Biochemistry 78: 264-277, 2000; PTO 892) in view of US Pat 6,350,452 B1 (filed Dec 8, 1999; PTO 892).

The teachings of Martelli et al have been discussed supra. Martelli et al further teach apoptosis can be detected using antibody that binds to protein C23/nucleolin and antibody such as C-2-10 that binds to PARP and the increase rate of apoptosis are responsible for various disease such as degenerative disease, autoimmune disease, and carcinoma (see page 264, col. 1, in particular).

The claimed invention in claims 2 and 43 differs from the teachings of the reference only in that the method of detecting apoptosis wherein the sample is from blood, serum, plasma or sputum.

The claimed invention in claim 13 differs from the teachings of the reference only in that the method of detecting apoptosis in a subject by preparing a blood sample from which cells have been removed and detecting at least one of nucleolin and PARP-1 in the sample instead of cells taken from tissue culture.

The claimed invention in claim 14 differs from the teachings of the reference only in that the method of detecting apoptosis in a subject wherein the subject having a disease selected from neurodegenerative disease, an ischemic injury, an autoimmune disease, a tumor or cancer.

The claimed invention in claim 15 differs from the teachings of the reference only in that the method of detecting apoptosis in a subject wherein the subject having cancer.

The claimed invention in claim 16 differs from the teachings of the reference only in that the method of detecting apoptosis in a subject wherein the subject having cancer wherein the cancer is endocervical adenocarcinoma, prostatic carcinoma, breast cancer, leukemia, or non-small cell lung carcinoma.

The '452 patent teaches a method of detecting apoptosis using various antibodies that binds specifically to PARP-1 in sample taken from a subject having various diseases such as cancer, leukemia, neurodegenerative diseases, autoimmune diseases, heart disease (ischemia) and others (see entire document, abstract, col. 2, lines 46-51, in particular). The reference biological sample is cell or cells collected from biopsy, biological fluid, tissue samples, or cells grown in culture such as HL60 (see col. 4, lines 1-28, in particular). The '452 patent teaches the reference anti-PARP-1 antibody is able to distinguished cleaved and uncleaved PARP-1 (full-length PARP-1) in cells undergo apoptosis versus non-apoptotic cells in biological sample obtained from subject having various disease; the reference method of detecting apoptosis provides a better understanding of these diseases and will be useful for screening potential therapeutic agents that may be induce or prevent apoptosis (see col. 3, lines 38-43, col. 45-54, in particular).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the cell sample taken from tissue culture as taught by Martelli et al for the biological sample collected from a subject having various diseases such as cancer, leukemia, neurodegenerative diseases, autoimmune diseases, heart disease (ischemia) and others for a method of detecting apoptosis in a subject as taught by the '542 patent. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art would have been motivated to do this because the '452 patent teaches detecting apoptosis from a biological sample taken from patient with various diseases such as cancer leukemia, neurodegenerative diseases, autoimmune diseases, heart disease (ischemia) or others will provide a better understanding of these diseases and also be useful for screening potential therapeutic agents that may be induce or prevent apoptosis (see col. 3, lines 38-43, col. 45-54, in particular). Martelli et al teach apoptosis can be detected using antibody that binds to protein C23/nucleolin and antibody such as C-2-10 that binds to PARP and

the increase rate of apoptosis are responsible for various disease such as degenerative disease, autoimmune disease, and carcinoma (see page 264, col. 1, in particular).

Applicants' arguments filed 5/15/06 have been fully considered but are not found persuasive.

Applicants' position is that Martelli et al does not correlate amounts of either nucleolin or full-length PARP-1 to detect apoptosis. Riss et al (the '452 patent) uses the antibody against cleaved 89kD PARP-1 as a marker for apoptosis in cultured HL60 cells.

In response, the amended claims do not correlate amounts of either nucleolin or full-length PARP-1 to detect apoptosis. The Examiner interprets the term "quantifying" as to mean detecting because quantifying without the levels, i.e., decrease or increase of nucleolin and full-length PARP-1 that correlated with apoptosis simply means detecting. Further, the reference antibody taught by Martelli et al inherently binds to the "full-length" as well as the cleaved poly(ADP-ribose polymerase (PARP-1). The teachings of the '452 patent are cited for sample taken from a subject having various diseases such as cancer, leukemia, neurodegenerative diseases, autoimmune diseases, heart disease (ischemia) and others (see entire document, abstract, col. 2, lines 46-51, in particular).

In response to applicants' argument that the antibody in the '542 patent recognizes cleaved PARP-1, the '542 patent also teaches the same antibodies recognize both cleaved and uncleaved PARP, which corresponding to full-length PARP-1 (Boehinger Mannheim, Indianapolis, Ind.; Cat. # 1835238), a single band corresponding to uncleaved PARP was visualized in the uncleaved sample, while two bands corresponding to uncleaved and cleaved PARP were visualized in the cleaved sample, see Example 2, paragraph 154, in particular).

10. Claim 41 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Martelli et al (J cellular Biochemistry 78: 264-277, 2000; PTO 892) in view of US Pat 6,096,532 (Aug 2000; PTO 892).

The teachings of Martelli et al have been discussed supra.

The claimed invention in claim 41 differs from the teachings of the reference only in that the method of detecting apoptosis wherein the cell culture is grown in a bioreactor.

The '532 patent teaches a method of growing cell in a bioreactor (see entire document, summary of invention, in particular). The advantages of growing cell in a bioreactor are minimizing the economies of labor, minimizing potential for contamination and optimizing

designed for use with a homogenous cell mixture and without exposing the sterile system to the external environment (see col. 7, lines 41-58 bridging col. 8, lines 1-24, in particular).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the cell sample that were grown in tissue culture for a method of detecting apoptosis as taught by Martelli et al for any cell that are growing in a bioreactor as taught by the '532 patent. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art would have been motivated to do this because the '532 patent teaches the advantages of growing cell in a bioreactor are minimizing the economies of labor, minimizing potential for contamination and optimizing designed for use with a homogenous cell mixture and without exposing the sterile system to the external environment (see col. 7, lines 41-58 bridging col. 8, lines 1-24, in particular).

Applicants' arguments filed 5/15/06 have been fully considered but are not found persuasive.

Applicants' position is that Martelli et al does not correlate amounts of either nucleolin or full-length PARP-1 to detect apoptosis. Armstrong et al (the '532 patent) does not correlate amount so either nucleolin or full-length PARP-1 to detect apoptosis.

In response, the amended claims do not correlate amounts of either nucleolin or full-length PARP-1 to detecting apoptosis. The Examiner interprets the term "quantifying" as to mean detecting because quantifying without the levels, i.e., decrease or increase of nucleolin and full-length PARP-1 that correlated with apoptosis simply means detecting. Further, the reference antibody taught by Martelli et al inherently binds to the "full-length" as well as the cleaved poly(ADP-ribose polymerase (PARP-1). The teachings of the '532 patent are cited for cell culture is grown in a bioreactor. The '532 patent teaches a method of growing cell in a bioreactor (see entire document, summary of invention, in particular). The advantages of growing cell in a bioreactor are minimizing the economies of labor, minimizing potential for contamination and optimizing designed for use with a homogenous cell mixture and without exposing the sterile system to the external environment (see col. 7, lines 41-58 bridging col. 8, lines 1-24, in particular).

11. The following new grounds of rejections are necessitated by the amendment filed 5/15/06.

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 1-6, 10-12, and 40-50 are rejected under 35 U.S.C. 1 12, first paragraph, containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors), at the time the application was filed, had possession of the claimed invention. **This is a new matter rejection.**

The "full-length" in Claims 1 and 42 represents a departure from the specification and the claims as originally fled. The passages pointed out by applicant in the amendment filed 5/15/06 do not provide a clear support for the said phrase.

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

15. Claims 1-6, 10-16, and 40-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The "quantifying further comprises membrane disruption" in claim 3 is indefinite and ambiguous because it is not clear which membrane in the claimed method is to be disrupted in a sample without cells.

Claim 1 is incomplete for failing to achieve the goal set forth in the preamble. The claim does not correlate with the level of nucleolin and full-length poly(ADP-ribose) polymerase (PARP-1) in detection of apoptosis. Further, detection of full-length (uncleaved) PARP-1 does not correlated with apoptosis.

"antigen comprising nucleolin" and "antigen comprising full-length poly(ADP-ribose) polymerase (PARP-1)" in Claims 1, 13 and 42 are ambiguous and indefinite because the specification discloses nucleolin and poly(ADP-ribose) polymerase (PARP-1). The specification further discloses the antibody detects nuclear nucleolin in the sample. It is not clear which "antigen comprising nucleolin" and "antigen comprising full-length poly(ADP-ribose) polymerase (PARP-1) are part of the claimed method. It is suggested that the term "antigen

comprising nucleolin" be amended to recite "nucleolin". Likewise, do the same for "antigen comprising full-length poly(ADP-ribose) polymerase (PARP-1)". Further, it is not clear the relationship between "antibody reacting with the blood sample" and the antigen comprising nucleolin in claim 13 as written. It is suggested that claim 13 be amended to recite a method of detecting excessive apoptosis in a subject, comprising: preparing a blood sample from which cells have been removed, reacting an antibody which binds nucleolin with the blood sample, quantifying the levels of nucleolin in the sample wherein a decrease in nucleolin in the sample is indicative of excessive apoptosis, for example. The same issue is found in claims 1 and 42.

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103(a) that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. This application currently names joint inventors. In considering Patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 42 and 44 rejected under 35 U.S.C. 103(a) as being unpatentable over Martelli et al (J cellular Biochemistry 78: 264-277, 2000; PTO 892) in view of Rosenthal et al (Nucleic Acids Res 25(7): 1437-1441; 1997; PTO 1449).

The teachings of Martelli et al have been discussed supra. Martelli et al further teach apoptosis can be detected using antibody that binds to protein C23/nucleolin and antibody such as C-2-10 that binds to PARP and the increase rate of apoptosis are responsible for various disease such as degenerative disease, autoimmune disease, and carcinoma (see page 264, col. 1, in particular).

The claimed invention in claim 42 differs from the teachings of the reference only in that the method of detecting apoptosis further comprises disrupting the apoptotic bodies.

Rosenthal et al teach a method of detecting apoptosis in cell by detecting the PARP in the human osteosarcoma cells growth in tissue culture (see entire document, page 1438, col. 2, in particular). The reference method further comprises disrupting the cells sample containing apoptotic bodies by homogenizing the cytosolic extract of the cell culture and detecting PARP cleavage or binding to damaged DNA (see page 1438, col. 2, first paragraph, Figure 4, page 1440, Discussion, in particular). Rosenthal et al teach PARP binds to damaged DNA at late stage of apoptosis (see page 1440, page 21439, col. 2, in particular).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to detecting apoptosis by disrupting the membrane in apoptotic bodies as taught by Rosenthal using the antibody binds to protein C23/nucleolin and antibody such as C-2-10 that binds to PARP as taught by Martelli et al. From the combined teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention.

One having ordinary skill in the art would have been motivated to do this because Rosenthal et al teach PARP binds to damaged DNA in apoptotic cell at late stage (see page 1439, col. 2, in particular). Martelli et al teach apoptosis can be detected using antibody that binds to protein C23/nucleolin and antibody such as C-2-10 that binds to PARP and the increase rate of apoptosis are responsible for various disease such as degenerative disease, autoimmune disease, and carcinoma (see page 264, col. 1, in particular).

19. No claim is allowed.

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

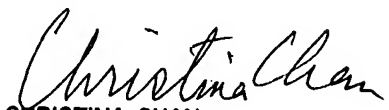
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh "NEON" whose telephone number is (571) 272-0846. The examiner can normally be reached Monday through Friday from 9:00 am to 5:30 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The IFW official Fax number is (571) 273-8300.

22. Any information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Phuong N. Huynh, Ph.D.
Patent Examiner
Technology Center 1600
July 21, 2006



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